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Wilmington, DE 19898

EXAMINER

HUANG, MEI QI

ART UNIT PAPER NUMBER

1713

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/501,491	Applicant(s) WONG ET AL.	
	Examiner Mei Q. Huang	Art Unit 1713	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 July 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
2. Claims 13-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
3. Claim 13 recites the limitation "the interlayer" in line 2. There is insufficient antecedent basis for this limitation in the claim. It is suggested that the claim be amended to recite "the layer is an interlayer having ...".

Double Patenting

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. Claim 1 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of copending

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Application No. 10/501,493. Although the conflicting claims are not identical, they are not patentably distinct from each other because the instantly claimed plasticized PVB composition is seen to have the same components as identified in the claim 1 of the copending application. The claim of the copending application cites a small laminate article comprising a plasticized PVB resin. Given the overlap in scope, the instantly claimed invention is rendered *prima facie* obvious by the claim of the copending application.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

6. Claim 21 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of copending Application No. 10/501,598. The difference between the subject matter of present Claim 21 and Claim 1 of the copending application is extrusion temperature and PVB sheet's glass transition temperature, T_g . A comparison is shown in the following table.

	The instantly claimed	Copending Application
Extruding Temperature °C	225 - 245	175 - 225
T_g °C	35 - 60	> 32

As one can see, the copending ranges overlap the instantly claimed ones. It has been consistently held that even a slight overlap in range establishes a *prima facie* case of obviousness. *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990) or

Titanium Metals Corp. of America v. Banner, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985).

This is a provisional obviousness-type double patenting rejection.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Degeilh et al. (U.S. Patent 5,187,217).

The prior art to Degeilh et al. relates a process of making a plasticized polyvinyl butyral (PVB) particularly used for gluing a base onto glazings. The polyvinyl butyral is obtained by the reaction of a polyvinyl alcohol with a quantity of aldehyde such that the level of hydroxylation of the polyvinyl butyral obtained is between 22 and 26%, with the reaction taking place in the presence of an acid catalyst and an emulsifier (i.e. surfactant), such as sodium dioctyl sulfosuccinate (i.e. DOSS), see column 1, lines 39-50. The amount of plasticizer used in the polyvinyl butyral resin is disclosed as 20-25 by parts per 100 parts of resin at column 2, lines 15-18.

Since including a PVB bleaching compound and other additives is only required by the instant claim 1 as an option, all the limitations of Claim 1 are fully met by Degeilh et als' disclosure.

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Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

11. Claims 2-3 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Degeilh et al. as applied to claim 1 above, and further in view of Garrett et al. (US Patent Pub. 2002/0182422).

The prior art to Degeilh et al. is adequately presented in paragraph 7 previously in this Office Action and is incorporated herein by reference.

The plasticizers used by Degeilh et al. are triethylene glycol di-(2-ethylbutyrate), i.e. 3GH (Degeilh' 217, column 2, lines 19-21), which is not the instantly claimed triethylene glycol bi-(2-ethylexanote), i.e. 3GO, and dibutyl sebacate.

The prior art to Garrett et al. discloses a plasticized PVB sheet. Garrett et al. teach the suitable plasticizers used in the invention including 3GH, 3GO and dibutyl

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sebacate. Garrett et al. herein teach the interchangeability of 3GH, 3GO and dibutyl sebacate as functionally equivalent plasticizers used in making PVB sheets. Thus, it would have been obvious to one of ordinary skill in the art to replace 3GH, as taught by Garrett et al. in Degeilh et als' PVB resin formulations with 3GO or dibutyl sebacate based on their expected interchangeability as functionally equivalent plasticizer, and thus to arrive at the instant claims 2-3, motivated by a reasonable expectation of success. *In re O'Farrell*, 853 F.2d 894, 903, 7 USPQ2d 1673, 1681 (Fed. Cir. 1988).

As to claim 12, Degeilh et als' teaching for the end-use of the invention is shown at column 1, lines 16-20, wherein they disclose that plasticized PVB films is used as an intermediate layer in laminated glazings and it is also used for gluing articles to sheets of glass, particularly bases for rear-view mirrors. Garrett et al. disclose a glass laminate containing a plasticized PVB sheet sandwiched between glass layers (Abstract).

12. Claims 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Degeilh et al. as applied to claim 1 above, in view of Garrett et al. as applied to claims 2-3, and further in view of Gutweiler (US Patent 5,573,842).

The prior arts to Degeilh et al. and Garrett et al. are adequately presented previously in this Office Action and is incorporated herein by reference.

Garrett et al. teach the inclusion of a UV stabilizer and antioxidant in making the PVB sheets. See "UV stabilizer and antioxidants" at page 7, [0114] and [0115] in Garrett' 422. The difference between the prior arts and the present application is that

both Degeilh et al. and Garrett et al. are silent as to the inclusion of a bleach compound in making the PVB sheets.

The prior art to Gutweiler relates to a plasticized PVB film comprising a plasticizer, PVB, and an optical brightener in an amount effective to improve the optical properties and reduce the yellowing of the film (Abstract). Gutweiler teaches that optical brighteners are used wherever a troublesome yellowish tinge in the color of the substrate is caused by absorption of short-wavelength visible light on or in a substrate (column 2, lines 49-65) and the resultant PVB film has a yellowness index of less than 2 (column 8, lines 4-5).

Degeilh et als' PVB film is used as an intermediate layer in laminated glazings and it is also used for gluing articles to sheets of glass, particularly bases for rear-view mirrors (column 1, lines 16-20). While Garrett et als' PVB sheets have a similar applicability as laminated safety glass, architectural or automotive glass (page 1, [0005] and page 8, [0119]). This end-use lends itself to the object of obtaining a glass laminates containing PVB sheets with improved optical quality including reduced yellowing. Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the brightener, as taught by Gutweiler, in the Degeilh et als' plasticized PVB formulation to obtain greatly reduced yellowness and substantially improved optical quality and optical translucence of the laminated films containing PVB resin, as taught by Gutweiler (column 3, lines 35-36).

As to claims 5-6, notice that sodium dioctyl sulfosuccinate, i.e. DOSS, is used as an emulsifier by Degeilh et al. (column 1, line 49), which reads on the instant claims 5-6.

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Even though Degeilh et al. do not specify that DOSS can also be used as a bleach agent, such functionality must be inherently processed by this compound. Finding a new property of the compound and such a discovery does not constitute a new invention. The courts have held that the fact that a characteristic is a necessary feature or result of a prior-art embodiment is enough for inherent anticipation, event if that fact was unknown at the time of the prior invention. *In Toro Co. v. Deere & Co.*, 355 F.3d 1313, 1320, 69 USPQ2d 1584, 1590 (Fed. Cir. 2004); ; and *In Atlas Powder Co. v. Ireco, Inc.*, 190 F.3d 1342, 1348-49 (Fed. Cir. 1999).

13. Claims 7-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Degeilh et al. as applied to claim 1 above, in view of Garrett et al. as applied to claims 2-3, further in view of Gutweiler (US Patent 5,573,842) as applied to claims 4-6, and yet still further in view of Shohi et al. (EP-1036775 A1) and online Product Catalog from Great Lakes Chemical Corporation, www.pa.greatlakes.com, 3rd Edition, October 2001.

The prior arts to Degeilh et al., Garrett et al. and Gutweiler are adequately presented previously in this Office Action and is incorporated herein by reference.

Degeilh et al. and Gutweiler are silent as to the use an antioxidant, while Garrett et al. include an antioxidant but do not teach a specific one.

The prior art to Shohi et al. provides an interlayer film for laminated glass containing PVB resin (Abstract and page 3, [0016]). Shohi et al. disclose that an antioxidant, such as phenolic antioxidant, among other additives, is conventionally incorporated in an interlayer film for laminated glass of this kind (page 4, [0033] and

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[0036]), while the online product catalog from Great Lakes Chemical Co. provides a list of nineteen antioxidants under the phenolic antioxidants category including 2,2'-methylenebis (6-t-butyl-4-methylphenol), which meets the instantly claimed compound. Including a phenolic antioxidant is a common practice in the art as clearly stated by Shohi et al. and finding a specific product from a chemical company's product catalog is well within the reach of a skilled person in the art. Therefore, it would have been obvious to those skilled in the art to employ such antioxidant in Degeilh et al.'s PVB composition, motivated by a reasonable expectation of successfully obtaining the corresponding interlayer film containing PVB for laminated glass.

As to claims 8-11, plasticizer used by Degeilh et al. is 20-25 part per 100 parts resin.

14. Claims 1 and 12-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gutweiler (US Patent 5,573,842) in view of Shohi et al. (EP-1036775 A1).

The prior art to Gutweiler relates to a plasticized PVB film comprising a plasticizer, PVB, and an optical brightener in an amount effective to improve the optical properties and reduce the yellowing of the film which is useful as intermediate film in multilayer laminated glass panes (Abstract). A PVB having a content of vinyl alcohol monomer units of 20.5% by weight is used in Examples 1-5, see column 4, lines 64-67. Plasticizer's usage of 23-30 wt% is shown at column 4, lines 1-3. The difference of the prior art and the present application is that Gutweiler does not teach the use of a surfactant.

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The prior art to Shohi et al. provides an interlayer film for laminated glass containing PVB resin (Abstract and page 3, [0016]). Shohi et al. teach that a surfactant among other additives, such as ultraviolet absorbers, light stabilizers, oxidation inhibitor, surfactant, colorant and so on, is conventionally incorporated in an interlayer film for laminated glass of this kind (page 4, [0033]). A surfactant is conventionally used in the art as clearly stated by Shohi et al. Therefore, it would have been obvious to those skilled in the art to employ such surfactant in the Gutweiler's plasticized PVB composition, motivated by a reasonable expectation of successfully obtaining the corresponding interlayer film containing PVB for laminated glass.

As to claim 12, Degeilh et als' teaching for the end-use of the invention is shown at column 1, lines 16-20, wherein they disclose that plasticized PVB films is used as an intermediate layer in laminated glazings and it is also used for gluing articles to sheets of glass, particularly bases for rear-view mirrors. Shohi et als' invention also provides an interlayer film for laminated glass which contains plasticized PVB (Abstract).

In regard to claims 13-15, Gutweiler's intermediate film has a yellowness index of less than 2 (column 8, lines 4-5). The method of making the intermediate film is disclosed at column 4, lines 4-16, with a thickness of 0.2-2 mm (column 4, line 8), which covers the instantly claimed range of 0.254-1.6 mm and 0.75-1.6 mm, and an extrusion temperature of 140-250° C (column 4, line 12), which covers the instantly claimed range of 225-245° C.

As to claims 16-19, Gutweiler discloses the end-use of the invented PVB laminated film as vehicle glass panes, glass panes for ships, aircraft glass panes,

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architectural glass panes for the building sector, safety glass panes and/or bullet-proof glass panes which comprise for instance glass/PVB film/glass (column 4, lines 37-49).

With regard to claim 20, Gutweiler's teaching of a process of making the PVB laminated film at column 5, lines 26-29, is not as detailed as required by the instant claim 20. Shohi et al. disclose a typical method of making a PVB laminated glass comprising interposing the interlayer film between a pair of transparent glass sheets, placing the assembly in a rubber bag, carrying out preliminary bonding at a temperature of about 70-110° C under reduced pressure and performing post-bonding in an oven at a temperature of about 120-150° C and a pressure of about 10-15 kg/cm² to provide the objective laminated glass, see page 5, [0044]. In light of Shohi et al.'s detailed teaching of the method of making a PVB laminated glass, one having ordinary skill in the art at the time the invention was made to use would appreciate and incorporate such teaching in Gutweiler's process for making a similar PVB laminated glass, motivated by a reasonable expectation of successfully obtaining the corresponding PVB laminated glass, as exemplified by Shohi et al.

15. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gutweiler (US Patent 5,573,842) in view of Dauvergne (FR Patent 2,401,941), and further in view of Shohi et al. (EP-1036775 A1).

The prior arts to Gutweiler and Shohi et al. are adequately presented previously in this Office Action and are incorporated herein by reference.

Gutweiler's PVB sheet with a yellowness index less than 2 (column 8, lines 4-5) is made by blending PVB with 23-30 wt% of plasticizer (column 4, lines 1-3) and extruding under temperature of 140-250° C (column 4, line 12). However, the synthesis of PVB disclosed by Gutweiler in Examples 1-5, column 4, is not as detailed as required by the instant claim 20. Dauvergne teaches a process for preparing PVB comprising adding PVA, acid catalyst, and an emulsifier into a reactor with stirring, introducing butyraldehyde gradually, then, after adjusting pH to 9-11, separating the resultant PVB from the mixture (Abstract). Dauvergne does not mention the wash step after PVB is separated from mixture. Shohi et al's teaching for synthesis of PVB includes washing the reaction mixture with an excess of water in order to wash out the unreacted n-butyraldehyde and the hydrochloric acid catalyst was neutralized with the common neutralizer (page 5, [0046]).

In light of Dauvergne's detailed teaching of a method of synthesizing PVB and Gutweiler's teaching of such method including a washing step, one having ordinary skill in the art at the time the invention was made would appreciate such teaching and, thus, to incorporate Dauvergne's method in Gutweiler's process for making a similar PVB laminate in combining with the method as taught by Shohi, because Dauvergne further detailed Gutweiler's method of synthesizing PVB and Shohi teaches the benefit of including one extra step of product washing and all three prior arts relate to the same subject matter, i.e. making a PVB laminated glass.

As to the glass transition temperature of the PVB sheet, as discussed above, given the substantially identity in the plasticized PVB composition between the prior art

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and the present invention, it is the examiner's position to believe that the prior art composition must inherently possess the same T_g . Since the PTO does not have proper means to conduct experiments, the burden of proof is now shifted to the applicant to establish an unobviousness difference. *In re Best*, 562 F.2d 1252, 195 USPQ 430 (CCPA 1977); *In re Fitzgerald*, 619 F.2d 67, 70, 205 USPQ 594, 596, (CCPA 1980).

Conclusion

The prior art made of record but not relied upon is considered pertinent to applicant's disclosure. The following references have been cited to show the state of the art with respect to the study of PVB laminated glass.

US Patent 4,035,549 to Kennar

US Patent 4,696,971 to Degeilh

US Patent 4,937,147 to Cartier et al.

US Patent 5,013,779 to Fariss et al.

US Patent 5,322,875 to Dages

US Patent 5,766,755 to Chaussade et al.

US Patent 6,673,456 to Kobata et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mei Q. Huang whose telephone number is (571) 272-3549. The examiner can normally be reached on 8am - 4pm, Mon. - Fri..


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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on (571) 272-1114. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Mei Q. Huang
Examiner

June 10, 2005



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